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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,425	12/31/2001	Yuri Glukhoy		5722

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EXAMINER

TRAN, CHUC

ART UNIT PAPER NUMBER

2821

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/032,425

**Applicant(s)**

GLUKHOY, YURI

**Examiner**

Chuc D Tran

**Art Unit**

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28 and 29 is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 13, 14 and 20 is/are rejected.
- 7) ☒ Claim(s) 2-5, 8-12, 15-19 and 21-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 11/27/01 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Rejections - 35 USC § 112***

1. Claims 1-3, 8-9, 15-16, 24, 25, 18 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter “elongated window unit and a carrier gas contains particles of a material for implantation” which were not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “two individual microwave generators and a plurality of individual microwave generators” must be shown or the feature(s) canceled from the claim(s) 1, 13, and 22. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 6-7, 13-14, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (USP. 5,707,486) in view of Collins et al (USP. 6,068,784).

Regarding claims 1,6-7, 13-14 and 20, Collins disclose electron cyclotron resonance comprising:

- a hollow housing (17) being made of a non magnetic, which function as an anode is connected to the high voltage power source (27) (Fig. 3) (Col. 7, Line 1&12) (Col. 2, Line 13) (Fig. 1);
- a magnets (47) generating a magnetic field within a plasma confining cavity in radial inward direction (Fig. 1) (Col. 8, Line 7);
- a microwave energy generation means (Col. 2, Line 52);
- a frequency required for the condition of electron cyclotron (Col. 1, Line 59);
- two generators (27 and 42) (Fig. 1);
- an elongated window unit (33) (Col. 7, Line 40);
- RF energy supply means (Col. 7, Line 6);
- Gaseous medium supply means (Col. 7, Line 36);
- Extraction means for forming an ion beam means (Col. 7, Line 58).

However, Collins is silent on the limitation of two pumping units. Collins et al disclose

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plasma reactor comprising two pump units (21 and 39) (Col. 4, Line 60) (Fig. 3). Thus, it would have been obvious to any one of ordinary skill in the art at the time the invention was made to add more pumping unit in order to make the charge particles flow toward the chamber proper.

***Allowable Subject Matter***

5. Claims 28-29 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to appreciate the advantage offered by electron cyclotron resonance with the following distinctive features such as set by the independent claim. In particular, the art of record fails to teach or fairly suggest constructing the method of cleaning the elongated window unit from contamination possesses all of the distinctive features such as defined by independent claim 28 to make a uniform beam of a given shape and extension.

7. Claims 2-5, 8-12, 15-19 and 21-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art fails to disclose the elongated window unit comprise a metal rod and the ion beam formation and extraction means comprising two electrode lateral ion extraction lens.

***Citation of relevant prior art***

Prior art Cox et al (USP. 6,418,874) disclose plasma source for plasma processing.

Prior art Ishii et al (USP. 5,874,706) disclose microwave plasma processing.

Prior art Collins et al (USP. 6,444,137) disclose method for processing substrate.

Prior art Ye et al (USP. 6,703,628) disclose method and system for ion beam.

Prior art Brailove et al (USP. 6,294,862) disclose multi cusp ion source.

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Prior art Lane et al (USP. 5,061,838) disclose toroidal electron cyclotron resonance reactor.

Prior art King et al (USP. 5,760,405) disclose plasma chamber for controlling ion.

Prior art Lee (USP. 5,453,305) disclose plasma reactor for processing substrate.


***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuc D Tran whose telephone number is (571) 272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TC  
March 26, 2004

  
**Don Wong**  
Supervisory Patent Examiner  
Technology Center 2800  
March 26, 2004